

IN THE CLAIMS:

Please cancel claims 1 and 13 without prejudice.

1 1. Cancelled

1 2. Cancelled.

1 3. (Currently Amended): The fuel as defined in ~~claim 1~~claim 4, wherein said neat
2 methanol comprises between about 90 to 100 per cent by weight of the total composition
3 of the fuel substance.

1 4. (Currently Amended): The fuel as defined in claim 1, A fuel for use in a fuel cell,
2 comprising:

3 (A) a carbonaceous fuel substance wherein said carbonaceous fuel substance is
4 substantially comprised of neat methanol; and
5 (B) a thickening substance that imparts viscosity to the fuel substance, thereby
6 forming a gel fuel,

7 wherein said thickening substance is substantially comprised of a hydrophobically modi-
8 fied cross-linked polyacrylate polymer rheology modifier.

1 | 5. (Currently Amended): The fuel as defined in ~~claim 1~~claim 4, wherein said thickening
2 substance comprises about 2 per cent by weight of the total composition of the fuel sub-
3 stance.

1 | 6. (Previously Presented): The fuel as defined in claim 27, wherein said alkaline pH-
2 modifying substance is in an amount sufficient to adjust the pH to a value of about 4.0.

1 | 7. (Previously Presented): The fuel as defined in claim 27, wherein said alkaline pH-
2 modifying substance is substantially comprised of sodium hydroxide.

1 | 8. (Previously Presented): The fuel as defined in claim 27, wherein said alkaline pH-
2 modifying substance comprises about 0.04 per cent by weight of the total composition of
3 the fuel substance.

1 | 9. (Currently Amended): The fuel as defined in ~~claim 1~~claim 4in which the gel fuel has
2 a viscosity of between about 1000 to 48,000 mPa s.

1 | 10. (Currently Amended): The fuel as defined in ~~claim 1~~claim 4, further comprising
2 safety enhancing additives.

1 | 11. (Original): The fuel as defined in claim 10 wherein said safety-enhancing additives
2 are selected from the group consisting of colorants, bitters, flame retardants.

1 | 12. (Currently Amended): The fuel as defined in ~~claim 1~~claim 4, further comprising
2 | polymeric additives.

1 | 13. Cancelled

1 | 14. (Currently Amended): A fuel cartridge for use with a fuel cell, the cartridge com-
2 | prising:

3 | (A) a compartment for holding a fuel suspended in a gel; and
4 | (B) a fuel vapor permeable layer “FVPL” forming one aspect of said compart-
5 | ment, said FVPL being permeable to a fuel substance that is released out of
6 | said gel, and said aspect of said compartment being coupled with said fuel cell
7 | in such a manner that the fuel travels through said FVPL into said fuel cell,
8 | wherein said FVPL is substantially comprised of a highly selective monolithic
9 | material having selectivity between fuel substance and water, such that said
10 | fuel substance can travel through said monolithic material to said fuel cell and
11 | water is substantially resisted from travellingtraveling from said fuel cell into
12 | said fuel cartridge.

1 | 15. (Original): The fuel cartridge as defined in claim 14 further comprising multiple
2 | FVPLs, at least one of which is said highly selective material.

1 | 16. (Currently Amended): The fuel cartridge as defined in ~~claim 13~~claim 14 wherein
2 | said FVPL is substantially comprised of a porous material that allows fuel substance to
3 | travel into said fuel cell and water to pass into said cartridge.

1 17. (Original): The fuel cartridge as defined in claim 16 further comprising surface area
2 increasing features having multiple components upon which gel can adhere to provide an
3 increased surface area of exposed gel.

1 18. (Currently Amended): The fuel cartridge as defined in ~~claim 13-claim 14~~ further
2 comprising a fuel impermeable removable seal that retains the fuel substance within the
3 cartridge prior to the fuel cell being used.

1 19. Cancelled.

1 20. (Previously Presented): A method of supplying fuel to a fuel cell, the method comprising
2 the steps of:

- 3 (A) providing a fuel substance suspended within a gel such that when contacting air,
4 fuel is evaporated out of said gel;
- 5 (B) directing said evaporated fuel substance into a fuel cell using a fuel vapor perme-
6 able layer “FVPL” coupled to a fuel cell which FVPL allows fuel substance to
7 pass through it into said fuel cell;
- 8 (C) providing as said fuel substance neat methanol;
- 9 (D) mixing a thickening substance into said neat methanol;
- 10 (E) adding a pH balancing substance to said neat methanol mixture to form a gel fuel;
- 11 (F) placing said gel fuel in a cartridge that has at least one FVPL having a methanol
12 permeable wall; and

13 (G) attaching said cartridge to a fuel cell with said methanol permeable wall contiguous
14 to an anode aspect of said fuel cell to thereby direct said evaporated fuel substance into the fuel cell.
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1 21. (Original): The method as defined in claim 20 including the further step of reconstituting
2 the gel fuel by adding additional liquid fuel.

1 22. (Currently Amended): A direct oxidation fuel cell system, comprising:

2 (A) a direct oxidation fuel cell including:

- 3 (i) a membrane electrolyte intimately interfacing with a catalyst layer
4 along each of membrane's major surfaces, being a catalyzed mem-
5 brane electrolyte, having an anode aspect and a cathode aspect;
6 (ii) an effective water supply from cathode to anode within said fuel cell,
7 so that water management in said fuel cell is achieved without water
8 collection from the cathode and/or water transport from cathode to an-
9 ode external to the active volume of the fuel cell;

10 (B) a replaceable-fuel supply cartridge having means for removably attaching said
11 cartridge to said fuel cell, including:

- 12 (i) a compartment for holding a fuel substance suspended in a gel; and
13 (ii) a fuel vapor permeable layer "FVPL" forming one aspect of said com-
14 partment, said FVPL being permeable to the fuel substance that is re-
15 leased out of said gel, and said aspect of said compartment being cou-
16 pled with said fuel cell in such a manner that the fuel travels through
17 said FVPL into said fuel cell; and

18 (C) an electrical coupling across said fuel cell for supplying power to an application
19 device.

- 1 23. (Original): A fueling device for a fuel cell system, comprising:
 - 2 (A) an internal fuel compartment that contains a gel fuel coupled to at least one fuel
 - 3 cell in the fuel cell system for delivering a fuel substance that evaporates out of
 - 4 said gel fuel; and
 - 5 (B) a replacement container coupled to said internal fuel compartment for refueling
 - 6 the gel fuel in said compartment.
- 1 24. (Original): The fueling device as defined in claim 23 wherein said fuel cell system and
- 2 said internal fuel compartment are disposed within an application device.
- 1 25. (Original): The fueling device as defined in claim 23 wherein said replacement con-
- 2 tainer houses a gel fuel for replacing gel fuel in said internal fuel compartment.
- 1 26. (Original): The fueling device as defined in claim 23 wherein said replacement con-
- 2 tainer houses a liquid fuel for delivery to said internal fuel compartment to reconstitute the
- 3 gel fuel that supplies said fuel cell system.
- 1 27. (Currently Amended) The fuel as defined in claim 4, further comprising an al-
- 2 kaline pH-modifying substance.
- 1 28. (New) A fuel for use in a fuel cell, comprising:
 - 2 (A) a carbonaceous fuel substance, said carbonaceous fuel substance consisting of
 - 3 neat methanol; and

4 (B) a thickening substance that imparts viscosity to the fuel substance, thereby forming
5 a gel fuel.

1 29. (New) A fuel cartridge for use with a fuel cell, the cartridge comprising:
2 (A) means for removably attaching the cartridge from an associated fuel cell;
3 (B) a compartment for holding a fuel suspended in a gel; and
4 (C) a fuel vapor permeable layer “FVPL” forming one aspect of said compartment, said FVPL being permeable to a fuel substance that is released out of
5 said gel, and said aspect of said compartment being coupled with said fuel cell
6 in such a manner that the fuel travels through said FVPL into said fuel cell.
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